

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1(currently amended): Steel superior in machinability comprised of, by wt%,

C: 0.005 to 0.2%,

Si: 0.001 to 0.5%,

Mn: 0.2 to 3.0%,

P: 0.001 to 0.2%,

S: 0.03 to 1.0%,

T.N: 0.002 to 0.02%,

T.O: 0.0005 to 0.035%, and

B: 0.0005 to 0.05, and

the balance of Fe and unavoidable impurities, said steel satisfying one or both of Mn/S in the steel being 1.2 to 2.8 or an area ratio of pearlite over a grain size of 1 μm in a microstructure of the steel being not more than 5%.

2(currently amended): Steel superior in machinability characterized by containing, by wt%, C: 0.005% to 0.2%, Mn: 0.3 to 3.0%, and S: 0.1 to 1.0%, and B: 0.0005 to 0.05, by having a density of MnS having a circle equivalent diameter of 0.1 to 0.5 μm at a cross-section parallel to a rolling direction of the steel material, taken from an extraction replica and observed by a transmission electron microscope, of at least 10,000/ mm^2 .

Claim 3: (canceled).

4 (original): Steel superior in machinability as set forth in claim 1, said steel characterized by having a density of MnS having a circle equivalent diameter of 0.1 to 0.5 μm at a cross-section parallel to a rolling direction of the steel material, taken from an

extraction replica and observed by a transmission electron microscope, of at least 10,000/mm².

5 (original): Steel superior in machinability as set forth in claim 1, said steel characterized by further restricting the amount of S to 0.25 to 0.75 wt% and the amount of B to 0.002 to 0.014 wt%, by containing amounts of S and B in a region surrounded by A, B, C, and D shown in FIG. 4 where the contents of S and B satisfy the following equation (1), and by containing sulfides with BN precipitated in MnS:

$$(B-0.008)^2/0.006^2+(S-0.5)^2/0.25^2\leq 1 \dots (1)$$

6 (original): Steel superior in machinability as set forth in claim 1 or 2, said steel characterized by further containing, by wt%, one or more of,

V: 0.05 to 1.0%,

Nb: 0.005 to 0.2%,

Cr: 0.01 to 2.0%,

Mo: 0.05 to 1.0%,

W: 0.5 to 1.0%,

Ni: 0.05 to 2.0%,

Cu: 0.01 to 2.0%,

Sn: 0.005 to 2.0%,

Zn: 0.0005 to 0.5%,

Ti: 0.0005 to 0.1%,

Ca: 0.0002 to 0.005%,

Zr: 0.0005 to 0.1%,

Mg: 0.0003 to 0.005%,

Te: 0.0003 to 0.05%,

Bi: 0.005 to 0.5%,

Pb: 0.01 to 0.5%, and

Al: $\leq 0.015\%$.

7 (withdrawn): A method of production of steel superior in machinability said method of production of steel characterized by casting molten steel having the steel ingredients as set forth in claim 1, then cooling at a cooling rate of 10 to 100°C/min, then cooling at a cooling rate of at least 0.5°C/sec in a range from an A₃ point to 550°C.

8 (withdrawn): A method of production of steel superior in machinability said method of production of steel characterized by casting molten steel having the steel ingredients as set forth in claim 2, then cooling at a cooling rate of 10 to 100°C/min, restricting a finishing temperature of hot rolling to at least 1,000°C, then cooling at a cooling rate of at least 0.5°C/sec in a range from an A₃ point to 550°C.

9 (withdrawn): A method of production of steel superior in machinability as set forth in claim 7 or 8, said method of production of steel characterized by restricting a heating temperature for adjusting hardness to not more than 750°C after the cooling after the hot rolling.

10 (withdrawn): A method of production of steel as described in claim 7 or 8, wherein said steel is steel superior in machinability characterized by further containing, by wt%, one or more of,

V: 0.05 to 1.0%,

Nb: 0.005 to 0.2%,

Cr: 0.01 to 2.0%,

Mo: 0.05 to 1.0%,

W: 0.5 to 1.0%,

Ni: 0.05 to 2.0%,

Cu: 0.01 to 2.0%,

Sn: 0.005 to 2.0%,

Zn: 0.0005 to 0.5%,

Ti: 0.0005 to 0.1%,

Ca: 0.0002 to 0.005%,

Zr: 0.0005 to 0.1%,

Mg: 0.0003 to 0.005%,

Te: 0.0003 to 0.05%,

Bi: 0.005 to 0.5%,

Pb: 0.01 to 0.5%, and

Al: $\leq 0.015\%$.